



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,163	12/31/2001	Christopher D. Voltz	H052617.1151US0	9385
EXAMINER				
CUNNINGHAM, GREGORY F				
ART UNIT			PAPER NUMBER	
2676			8	

DATE MAILED: 03/10/2004

Intellectual Property Administration
Legal Department M/S 35
P.O. Box 272400
Ft. Collins, CO 80527-2400

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,163

Applicant(s)

VOLTZ ET AL.

Examiner

Greg Cunningham

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to amendment filed 12/23/2003.
 2. The disposition of the claims is as follows: claims 1-22 are pending in the application.
- Claims 1, 11, 16 and 20 are independent claims. Claims 3 and 21 have been cancelled.

Specification

3. In view of the amended title, objection to title is withdrawn.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 11 and 16 are rejected under 35 U.S.C. 102(b) as being disclosed by Wynne, (US Patent Number 5,517,191).

A. Claim 11, "A computer system [col. 2, lns. 52], comprising: a processor; and a video subsystem coupled to the processor, the video subsystem comprising: a plurality of digital-to-analog converters for a plurality of color channels of the video subsystem [col. 3, lns. 43-49]; a video connector coupled to the plurality of digital-to-analog converters for connection to a monitor [shown in figs. 2 and 4]; and a non-volatile memory storing a plurality of digital characterization values for the plurality of digital-to-analog converters [shown in fig. 2]" is disclosed by Wynne [supra as detailed]. Wherein "calibration circuit which permits adjustment

Art Unit: 2676

via digital commands [col. 2, lns. 26-27]”, wherein commands and data for ADV476, lines D0-D7 and P0-P7 [col. 6, lns. 61-65] accomplishes this, is system located in CPU 22, Fig. 2 [col. 5, lns. 46-47] when desk top publishers or other graphic software applications are used with the computer system 10 [col. 5, lns. 42-43] which interconnects computer with a hard drive 12a and floppy disk drive 12b.

B. Per independent claim 16, this is directed to a system for the system of independent claim 11, and therefore is rejected to independent claim 11.

6. Claim 1, 4, 5 and 20 are rejected under 35 U.S.C. 102(b) as being disclosed by Zalph, (US Patent Number 5,245,326).

A. Zalph discloses claim 1, “A method of characterizing a plurality of digital-to-analog converters for a plurality of color channels of a video subsystem of a computer system, the method comprising the steps of: driving the plurality of digital-to-analog converters with a set of predetermined input digital values; measuring a plurality of output analog voltages of the plurality of digital-to-analog converters in response to the driving step [col. 4, lns. 29-45]; and storing a plurality of digital characterization values corresponding to the plurality of output analog voltages in a non-volatile memory of the video subsystem such that the digital characterization values are permanently stored in the non-volatile memory [col. 5, lns. 11-30]” as [detailed]. Wherein liquid crystal display system corresponds to a video system.

B. Per independent claim 20, this is directed to a method for performing the method of independent claim 1, and therefore is rejected to independent claim 1, particularly in col. 4, lns. 42-45.

Art Unit: 2676

C. Claim 4, "The method of claim 1, the storing step comprising the step of: storing a set of digital characterization values for each digital-to-analog converter of the plurality of digital-to-analog converters" is disclosed supra for claim 1, particularly in [col. 5, lns. 11-30].

D. Claim 5, "The method of claim 4, wherein the set of digital characterization values comprises only a single digital characterization value for each digital-to-analog converter" is disclosed supra for claim 4. Wherein single value represents "full scale" value.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zalph, (US Patent Number 5,245,326) as applied to claim 1 above, and further in view of Thomason, (EP Patent Number 0780986A2).

A. Claim 2, "The method of claim 1, wherein the set of predetermined input digital values comprises only a maximum input digital value for the plurality of digital-to-analog converters" is disclosed by Zalph supra for claim 1. However Zalph does not appear to disclose "wherein the set of predetermined input digital values comprises only a maximum input digital value for the plurality of digital-to-analog converters", but Thomson does at [when the data to be converted is at full scale].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply “Calibration apparatus for brightness controls of digitally operated liquid crystal display system” disclosed by Zalph in combination with maximum input digital value disclosed by Thomson, and motivated to combine the teachings because it would provide automatic calibration digital to analog converter for a video display as revealed in abstract by Thomson.

C. Claim 6, “The method of claim 1, wherein the set of predetermined input digital values comprises a plurality of input digital values for each digital-to-analog converter of the plurality of digital-to-analog converters” is disclosed by Zalph supra for claim 1. However Zalph does not appear to disclose “wherein the set of predetermined input digital values comprises a plurality of input digital values for each digital-to-analog converter of the plurality of digital-to-analog converters”, but Thomson does at [(22) of figure 1].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply “Calibration apparatus for brightness controls of digitally operated liquid crystal display system” disclosed by Zalph in combination with plurality of digital data values (22) disclosed by Thomson, and motivated to combine the teachings because it would provide automatic calibration digital to analog converter for a video display as revealed in abstract by Thomson.

D. Claim 7, “The method of claim 1, wherein the plurality of digital characterization values comprise a plurality of digital representations of the plurality of analog output voltages” is disclosed by Zalph supra for claim 1. However Zalph does not appear to disclose “wherein the plurality of digital characterization values comprise a plurality of digital representations of the

Art Unit: 2676

plurality of analog output voltages”, but Thomson does at figure 1 of Thomson. Wherein “digital representations” broadly interpreted are digital, analog, or a sampled combination thereof which represent digital values, but are not necessarily digital values, used to characterize and correspond to the plurality of output analog voltages.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply “Calibration apparatus for brightness controls of digitally operated liquid crystal display system” disclosed by Zalph in combination with digital, analog, or a sampled combination thereof which represent digital values disclosed by Thomson, and motivated to combine the teachings because it would provide automatic calibration digital to analog converter for a video display as revealed in abstract by Thomson.

E. Claim 8, “The method of claim 1, wherein the plurality of digital characterization values comprise a plurality of digital values corresponding to a mathematical model for the plurality of analog output voltages” is disclosed by Zalph supra for claim 1. However Zalph does not appear to disclose “wherein the plurality of digital characterization values comprise a plurality of digital values corresponding to a mathematical model for the plurality of analog output voltages”, but Thomson does in col. 2, lns. 17-56; col. 5, lns. 47-53; col. 6, ln. 50 – col. 7, ln. 13. Wherein also the descriptive words current mirror, control signal, error signal, sample-and-hold, feedback and servo-loop imply mathematical modeling as basic as algebraic application of kirchoff current laws to z-transforms for sample-and-hold and digital feedback circuits.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply “Calibration apparatus for brightness controls of digitally operated liquid crystal display system” disclosed by Zalph in combination with mathematical model

disclosed by Thomson, and motivated to combine the teachings because it would provide automatic calibration digital to analog converter for a video display as revealed in abstract by Thomson.

F. Claim 9, "The method of claim 1, wherein the measuring step is performed with a precision termination load resistor" is disclosed by Zalph supra for claim 1. However Zalph does not appear to disclose "wherein the measuring step is performed with a precision termination load resistor", but Thomson does in col. 2, lns. 10-13. Although "greater than, for example 1%" is given, this is still relatively less than 10% or 20% resistor tolerances.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply "Calibration apparatus for brightness controls of digitally operated liquid crystal display system" disclosed by Zalph in combination with mathematical model disclosed by Thomson, and motivated to combine the teachings because it would provide automatic calibration digital to analog converter for a video display as revealed in abstract by Thomson.

G. Claim 10, "The method of claim 1, wherein the plurality of digital characterization values represents a plurality of transfer functions for the plurality of digital-to-analog converters" is disclosed by Zalph supra for claim 1. However Zalph does not appear to disclose "wherein the plurality of digital characterization values represents a plurality of transfer functions for the plurality of digital-to-analog converters", but Thomson does in col. 2, lns. 17-56. Wherein transfer function describes input – output relationships.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply "Calibration apparatus for brightness controls of digitally operated

Application/Control Number: 10/039,163

Art Unit: 2676

liquid crystal display system" disclosed by Zalph in combination with mathematical model disclosed by Thomson, and motivated to combine the teachings because it would provide automatic calibration digital to analog converter for a video display as revealed in abstract by Thomson.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zalph, (US Patent 5,245,326) as applied to claim 20 above, and further in view of Wynne, (US Patent Number 5,517,191).

A. Claim 22, "The method of claim 20, wherein the video system comprises a graphics controller" is disclosed by Zalph supra for claim 1. However Zalph does not appear to disclose, "wherein the video system comprises a graphics controller", but Wynne does in fig. 3.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply "Calibration apparatus for brightness controls of digitally operated liquid crystal display system" disclosed by Zalph in combination with graphics controller disclosed by Wynne, and motivated to combine the teachings because it would provide auto calibration for brightness controls of digitally operated LCD as revealed in abstract by Thomson.

10. Claim 12-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson, (EP 780986 A2) as applied to claim 10 above, and further in view of Wynne, (US Patent Number 5,517,191).

A. Claim 12, "The computer system of claim 11, wherein the plurality of digital characterization values represent a plurality of transfer functions for the plurality of digital-to-analog converters" is disclosed by Wynne supra for claim 11. However, Wynne does not appear to disclose, "wherein the plurality of digital characterization values represent a plurality of

transfer functions for the plurality of digital-to-analog converters”, but Thomas does in col. 2, lns. 17-56.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply output/input relationships disclosed by Thomson in combination with the computer system disclosed by Wynne, and motivated to combine the teachings because it would be common for Wynne since he employs a plurality of DACs as revealed by Wynne in abstract.

B. Claim 13, “The computer system of claim 11, wherein the plurality of digital characterization values comprise a plurality of digital representations for a plurality of analog output voltages measured for the plurality of digital-to-analog converters by driving the plurality of digital-to-analog converters with a set of predetermined input digital values” is disclosed supra for claim 11 and by Wynne in col. 2, ln. 54 – col. 3, ln. 26. Wherein, generically, red, green and blue correspond to plurality.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply output/input relationships disclosed by Thomson in combination with the computer system disclosed by Wynne, and motivated to combine the teachings because it would be common for Wynne since he employs a plurality of DACs as revealed by Wynne in abstract.

C. Claim 14, “The computer system of claim 11, wherein the plurality of digital characterization values comprises only a single digital characterization value for each digital-to-analog converter of the plurality of digital-to-analog converters” is disclosed by Wynne supra for claim 11. However, Wynne does not appear to disclose, “wherein the plurality of digital

characterization values comprises only a single digital characterization value for each digital-to-analog converter of the plurality of digital-to-analog converters”, but Thomas does in [when the data to be converted is at full scale]. Wherein single value represents “full scale” value.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply output/input relationships disclosed by Thomson in combination with the computer system disclosed by Wynne, and motivated to combine the teachings because it would be just as applicable for Wynne since he employs a plurality of DACs as revealed by Wynne in abstract.

D. Claim 15, “The computer system of claim 11, further comprising: color management software executable by the processor to perform color correction based on the plurality of digital characterization values ” is disclosed supra for claim 11 and in col. 1, ln. 57 – col. 2, ln. 15 and lns. 43-53. wherein color correction corresponds to color management.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply output/input relationships disclosed by Thomson in combination with the color correction system disclosed by Wynne, and motivated to combine the teachings because it would be just as applicable for Wynne since he employs a plurality of DACs as revealed by Wynne in abstract.

E. Claim 17, “The video subsystem of claim 16, wherein the plurality of digital characterization values comprise a plurality of digital representations for a plurality of analog output voltages measured for the plurality of digital-to-analog converters by driving the plurality of digital-to-analog converters with a set of predetermined input digital values” is disclosed supra for claims 13 and 16.

Application/Control Number: 10/039,163
Art Unit: 2676

F. Claim 18, "The video subsystem of claim 16, wherein the plurality of digital characterization values comprises only a single digital characterization value for each digital-to-analog converter of the plurality of digital-to-analog converters" is disclosed supra for claims 14 and 16.

G. Claim 19, "The video subsystem of claim 16, wherein the plurality of digital characterization values represent a plurality of transfer functions for the plurality of digital-to-analog converters" is disclosed supra for claims 12 and 16.

Citation of Pertinent Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

<u>U. S. Patent No.</u>	<u>Issued</u>	<u>Class</u>	<u>Applicant(s)</u>
6,154,157	11/28/2000	341/110	Wong

Response to Arguments

12. Applicant's arguments filed 12/23/2003 have been fully considered but they are not persuasive.

With regard to independent claims 11 and 16, Wynne discloses wherein "calibration circuit which permits adjustment via digital commands [col. 2, lns. 26-27]", wherein commands and data for ADV476, lines D0-D7 and P0-P7 [col. 6, lns. 61-65] accomplishes this, is system located in CPU 22, Fig. 2 [col. 5, lns. 46-47] when desk top publishers or other graphic software

Application/Control Number: 10/039,163
Art Unit: 2676

applications are used with the computer system 10 [col. 5, lns. 42-43] which interconnects computer with a hard drive 12a and floppy disk drive 12b.

Applicant's arguments with respect to claims 1, 2, 4-10, 20 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Responses

14. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 872-9314 may be used for formal communications.

Please label "PROPOSED" or "DRAFT" for informal facsimile communications. Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Inquiries

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Cunningham whose telephone number is (703) 308-6109.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached on (703) 308-6829.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

G.F. Cunningham

gfc

March 4, 2004

Matthew C. Bella

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600